Plant Science Merit program @ Huntley Meadows Park

Important information about how to prepare for a merit badge program at Huntley Meadows Park.

Merit badges are also supposed to be done with the buddy system. ***We highly recommend that you attend the program with your scout especially if he does not have a buddy***; the chances of your scout completing all the work for the badge, during the allotted time, increases dramatically when he is properly motivated. There is never a fee for adults and you are sure to learn something. Also our policy is that the program will not proceed if there are not 2 or more adults present for the program especially those containing hikes. We will attempt to enlist adult volunteers from our center but this is not always possible so ***prepare for the possibility that you may have to stay for the program and not just drop off your scout*.** This will allow the instructor to concentrate more fully on the difficult task of imparting all the required information and assisting the boys individually if necessary, while other adults keep the atmosphere calm and productive.

These programs are 3-5 hours long be sure to pack a snack and water for your scout and that he is dressed appropriately for being outdoors for some or all of the program time. Merit Badges are in general not designed to be completed in an afternoon therefore in order to complete the badge there is some work the scouts need to do outside of the workshop. We call this prework. We suggest this is done prior to the badge program date but we realize this is not always practical or possible, in these cases we will if requested sign partial cards and accept the assignments after the program of ask that your bring/ send back all the work and the card in order to sign off on the blue card all at once.

The following is what we will be doing during the plant science badge if it is in RED it is prework!

1. Make a drawing and identify five or more parts of a flowering plant. Tell what each part does.
2. Explain photosynthesis and tell why this process is important.

   Tell at least five ways that humans depend on plants.
3. Explain how, light, air, temperature, pollinators, and pests affect plants.

   Describe the nature and function of soil and explain its importance.

   Tell about the texture, structure, and composition of fertile soil.

   Tell how soil may be improved.
4. Tell how to propagate plants by seeds, roots, cuttings, tubers, and grafting.

   ☐ Grow a plant by ONE of these methods.
5. List by common name at least 10 native plants and 10 cultivated plants that grow near your home.

   List five invasive nonnative plants in your area and tell how they may be harmful.

   Tell how the spread of invasive plants may be avoided or controlled in ways that are not damaging to humans, wildlife, and the environment.
6. Name and tell about careers in agronomy, horticulture, and botany

   Write a paragraph about a career in one of these fields that interests you.

7. Choose ONE of the following options and complete each requirement: (option 1 and 2 deleted)

☐ **Option 3: Field Botany**

A. Visit a park, forest, or other natural area near your home. While you are there:
   1. Determine which species of plants are the largest and which are the most abundant. Note whether they cast shade on other plants.
   2. Record environmental factors that may influence the presence of plants on your site, including latitude, climate, air and soil temperature, soil type and pH, geology, hydrology, and topography.
   3. Record any differences in the types of plants you see at the edge of a forest, near water, in burned areas, or near a road or railroad.

B. Select a study site that is at least 100 by 100 feet. Make a list of the plants in the study site by groups of plants: canopy trees, small trees, shrubs, herbaceous wildflowers and grasses, vines, ferns, mosses, algae, fungi, lichens. Find out which of these are native plants and which are exotic (or nonnative).

C. Tell how an identification key works and use a simple key to identify 10 kinds of plants (in addition to those in general requirement 5 above). Tell the difference between common and scientific names and tell why scientific names are important.

D. After gaining permission, collect, identify, press, mount, and label 10 different plants that are common in your area. Tell why voucher specimens are important for documentation of a field botanist's discoveries.

E. Obtain a list of rare plants of your state. Tell what is being done to protect rare plants and natural areas in your state. Write a paragraph about one of the rare plants in your state.

F. Choose ONE of the following alternatives and complete EACH of its requirements: (1-3, and 5 deleted)

   ☐ 4. Herbarium Visit
      a. Write ahead and arrange to visit an herbarium at a university, park, or botanical garden; OR, visit an herbarium Web site (with your parent's permission).
      b. Tell how the specimens are arranged and how they are used by researchers. If possible, observe voucher specimens of a plant that is rare in your state.
      c. Tell how a voucher specimen is mounted and prepared for permanent storage. Tell how specimens should be handled so that they will not be damaged.
      d. Tell about the tools and references used by botanists in an herbarium.

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